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AMERICAN ACADEMY of ACTUARIES

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April 25, 2016

Mr. Mike Boerner  
Chair, Life Actuarial Task Force  
National Association of Insurance Commissioners

RE: Comment Letter on APF to Keep Term and ULSG Separate in VM-20 Calculation to Reduce Allocation Concerns

Dear Mr. Boerner,

On behalf of the American Academy of Actuaries<sup>1</sup> Life Reserve Work Group (LRWG) I wish to submit the following comments on the Amendment Proposal Form (APF) to keep Term and universal life insurance with secondary guarantees (ULSG) separate when performing the VM-20 reserve calculation (the “Proposal”). As stated in item #4 of the APF, the issue being addressed is to “reduce concerns with the current allocation method where the PBR excess may be allocated to a product that did not generate it”.

The LRWG presumes that what is meant by the “PBR excess” is the excess of the modeled reserve (either the Deterministic Reserve (DR) or the Stochastic Reserve (SR)) over the Net Premium Reserve (NPR). It is our understanding that the primary concern intended to be addressed by the APF is not with the amount of the VM-20 minimum reserve, but the allocation of the VM-20 minimum reserve to products.

By its nature, the issues addressed by the APF are quite technical. We have summarized our conclusions in an Executive Summary, followed by a detailed Rationale.

### **Executive Summary**

The LRWG recognizes that the current process to allocate the minimum reserve to products is flawed and needs to be modified. We believe that any such modification should not increase the total VM-20 minimum reserve as currently defined in the Valuation Manual. We are submitting an alternative proposal outlined in the Rationale section below that:

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<sup>1</sup> The American Academy of Actuaries is an 18,500+ member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

- Uses a standalone approach by product to allocate the total minimum reserve to each product.
- Results in an allocation to each product that never falls below the NPR for the product.
- Does not increase the total minimum reserve currently defined in VM-20.
- Does not allocate any excess of the modeled reserve over the NPR to a product that did not generate the excess.

## **Rationale**

The LRWG believes that the current process in VM-20 to allocate the resulting minimum reserve to each policy, and thus, to each product, is flawed. We support making changes to the allocation process to fix this problem. Our proposal is described later in this letter. However, the LRWG believes that any proposal to fix the problem with the allocation of the minimum reserve should not impact the total amount of the minimum reserve determined under VM-20. Unfortunately, the current Proposal could potentially increase the total amount of the minimum reserve in the following two ways:

1. Limiting the level of risk offsets between products.
2. Imposing the comparison of the NPR to the modeled reserve on a standalone basis by product rather than in the aggregate.

The Proposal addresses the current allocation problem in VM-20 by requiring that the VM-20 reserve calculation be performed on a standalone basis for Term, ULSG, and all other products. This standalone approach results in changes to the following two sections of VM-20:

1. Section 7. The calculation of the Stochastic Reserve. This could limit the level of risk offsets between products and increase the minimum reserve (item #1 above).
2. Section 2. The comparison of the NPR, DR and SR to determine the minimum reserve. This could also increase the minimum reserve (item #2 above).

The LRWG believes that a standalone approach to allocate the minimum VM-20 reserve to Term and ULSG products can be accomplished without triggering an increase in the total minimum reserve. Our comments and suggested LRWG proposal would address each of the two sections separately:

## **Comments on changes to Section 7**

The Proposal outlines two alternatives to determine subgroups of policies for the Stochastic Reserve calculation in Section 7. The LRWG respectfully believes both alternatives are ill advised since they both could limit the level of risk offsets that are recognized in the SR calculation. The LRWG strongly believes that the principle of permitting risk offsets between products is a fundamental principle of a principle-based system. VM-20 was designed to recognize the benefits of risk offsets as one of the fundamental features of the SR calculation. It has been part of the SR calculation since the very beginning of the development of VM-20.

Of the two options, we prefer Option 2, since it permits aggregation of Term and ULSG. Although it is closer to PBR principles than Option 1, it could still limit the amount of risk offsets and increase the total minimum reserve compared to the current VM-20 requirements.

The limitation on risk offsets arises since the SR reserve for each subgroup is based on the “worst 30%” of the scenarios. However, the “worst 30%” of scenarios for one subgroup of products will likely be different from the “worst 30%” of another subgroup of products, as well as being different from the “worst 30%” of all products combined together into one aggregate calculation. Thus, summing the standalone SR for each subgroup of products is based on a situation that cannot occur, since multiple “worst 30%” sets of scenarios cannot occur at the same time. The way to avoid this impossible situation is to use the same “worst 30%” set of scenarios for each subgroup of products.

The limitation of the level of risk offsets that is proposed by the APF sets a dangerous precedent, since we believe that risk offsets is a fundamental principle of a principle-based system. Below is a proposed alternative to allocate the SR to products that doesn’t impact the level of risk offsets that are recognized.

#### LRWG Proposal to implement a standalone approach for the SR calculation in Section 7

Three step process:

1. Determine the SR as currently defined in VM-20 on a combined aggregate basis for all products not excluded from the SR. Make note of the “worst 30%” scenarios used to calculate the aggregate SR.
2. Calculate the SR on a standalone basis (to the extent not excluded from the SR) for 1) Term and 2) ULSG and 3) all other products combined, using the same “worst 30%” scenarios that were used for the aggregate SR calculation.
3. If the sum of the SR for the three product categories doesn’t equal the aggregate SR after using the same set of 30% worst scenarios, then allocate the aggregate SR in proportion to the split of the standalone SR by product.

This approach results in a standalone SR for each product, but doesn’t increase the total SR as determined under the current VM-20 requirements.

#### **Comments on changes to Section 2**

The current VM-20 requirements apply the comparison of the NPR, DR and SR on an aggregate basis, that is, the VM-20 minimum reserve is the greater of the aggregate NPR, the aggregate DR and the aggregate SR (assuming the Deferred Premium Asset is zero). Thus, if there is an excess of the NPR over the modeled reserve for one product, and a shortfall of the NPR compared to the modeled reserve for another product, the excess and shortfall are netted together when doing the comparison.

A simple two product illustrative example might help. Let's assume the following standalone amounts for two products:

	NPR	DR	SR
Product A	10	13	15
Product B	12	10	10
Total	22	23	25

Doing the comparison on the total results gives a minimum reserve of 25 (greater of 22, 23 and 25). However if the comparison is done at the product level and then summed, the minimum reserve is 27: Product A = 15 (greater of 10, 13 and 15) plus Product B = 12 (greater of 12, 10 and 10).

Thus, by applying the comparison on a product basis first and then summing, the minimum reserve has been increased by 2 over the aggregated approach. This arises because in the aggregate calculation, the excess of the modeled reserve over the NPR in Product A of 5 (i.e., 15-10) is offset by the excess of the NPR over the modeled reserve in Product B of 2 (i.e., 12-10). However, if the comparison is done on a product basis, the excess of the NPR over the modeled reserve for Product B is ignored.

The LRWG believes that the correct application of the “three-legged” comparison should be done at the aggregate level. In the simple example above, the LRWG believes that the correct minimum reserve is 25. The stochastic reserve models all the risks of the product portfolio, and in our view, the SR is the intended and proper minimum reserve. The NPR was designed to serve as the tax reserve. It has also been described as having the regulatory purpose of serving as an overall floor on the modeled reserve. In our view, this floor was designed to be applied on an aggregate basis, which is the current treatment in VM-20.

Applying the comparison on a product-by-product basis could inappropriately increase the minimum reserve to a level that is above the intended minimum reserve. Again, if the concern is with the allocation of the minimum reserve to products, then the current Proposal results in an unintended consequence of increasing the amount of the minimum reserve.

The key issue here is whether the excess of the NPR over the modeled reserve for one product on a standalone basis can be used to lower the modeled reserve that is in excess of the NPR for another product. The LRWG believes that the netting of such excesses is appropriate, and is consistent with the objectives of a principle-based approach. We believe a true principle-based approach would not determine the minimum reserve on a product-by-product basis, each with a prescribed formulaic floor, and then add them up. The LRWG firmly supports the view that the appropriate minimum reserve should be done in the aggregate, subject to an overall aggregate floor.

The LRWG recognizes that historically, minimum reserve requirements have been based on a seriatim approach, which makes it easy to simply add up the policy-by-policy reserve amount to get the total reserve by product. Moving to a PBR approach that starts with an aggregate modeled reserve that is then allocated to the product level is a paradigm shift that will require getting comfortable with the appropriateness of the resulting product reserve. Nevertheless, the

LRWG believes that aggregation across products is a fundamental principle of a principle-based approach and should be retained. This includes making the aggregate modeled reserve subject to an aggregate floor. But we take issue with any allocation process that increases the total minimum reserve above what the aggregate reserve methodology would produce.

Below is a proposal to implement a standalone approach by product when doing the “three-legged” comparison that does not increase the current minimum reserve as defined in the current version of VM-20.

### LRWG Proposal for a standalone approach for the Minimum Reserve comparison in Section 2.

Three step process:

1. Define an amount called the “product excess” which equals the sum of the excess of the modeled reserve over the NPR by product, but ignoring any negative excess by product where the where NPR is greater than the modeled reserve.
2. Allocate the amount of actual aggregate excess of modeled reserve over the NPR (which recognizes any negative excess of the NPR over the modeled reserve by product) in proportion to the amount that the product contributed to the total “product excess”.
3. Add the result of the allocation in step 2 to the NPR by product.

Applying this approach to the simple two-product example above gives the following:

1. Product excess = 5. Equals 15–10 (Product A) plus 0 (Product B)
2. Aggregate excess = 3. Equals 25–22. 100% of the excess of 3 goes to Product A since it contributed 100% to the Product Excess.
3. Allocation of minimum reserve to product = NPR plus allocation from step 2:

$$\begin{aligned}\text{Product A} &= 10 + 3 = 13 \\ \text{Product B} &= 12 + 0 = 12\end{aligned}$$

The sum of minimum reserve allocated to products = 12 + 13 = 25 which equals the aggregate minimum reserve of 25. Thus, the total minimum reserve of 25 still equals the total modeled reserve of 25, and hasn’t been increased by the new allocation process.

Note that this approach requires that the minimum reserve by product must be at least equal to the NPR by product. The product reserve can never fall below the NPR. However, any excess of the NPR over the modeled reserve by product is allowed to be recognized as a credit against the modeled reserve of other products in order to produce the proper total minimum reserve.

This meets the objective stated in the APF to address “concerns with the current allocation method where the PBR excess may be allocated to a product that did not generate it.” In the LRWG proposal, none of the excess of the modeled reserve over the NPR is allocated to a product that did not generate it.

Thank you for the opportunity to provide input on this important Proposal.

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If you have any questions or would like to further discuss these topics, please contact Amanda Darlington, life policy analyst, at [darlington@actuary.org](mailto:darlington@actuary.org).

Sincerely,

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Chairperson  
Life Reserves Work Group  
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